NANOSTRUCTURED LUBRICATING OIL

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to lubricating oils and, more particularly, to a nanostructured lubricating oil that forms a protective oil film on the surface of the mechanical parts when applied to the engine of a motor vehicle.

2. Description of the Related Art:

Engine oil (lubricating oil) is adapted to form a lubricating medium between parts inside the engine of a motor vehicle, reducing friction between the parts and simultaneously dissipating heat from the parts during operation of the engine. Regular engine oil is formed by mixing an oil with additives. Various additives may be used to improve the surface condition of the mechanical parts (for example, cleaning agent, heat dissipating agent, high pressure/wear protecting agent, corrosion protective agent, friction modifier, etc.), to improve oil grade (for example, viscosity improver, flow point improver, elasticity modifier, etc.), or to save oil consumption (for example, age resistor, metal deactivator, bubble eliminator). These additives are active and oil soluble, and can be mixed in a mineral-contained basal oil to improve the quality of the oil and/or to let the oil have special properties. The type and amount of additives determine the performance of the

lubricating oil. Additives in an engine oil may improve the quality of the basal oil (VT reaction), or eliminate certain material properties (aging under a high temperature or oxide-contained environment. In general, an engine oil has the functions of lubricating and cleaning the mechanical parts of the engine, protecting the mechanical parts of the engine against corrosion, stabilizing the aging of the mechanical parts of the engine, and cooling down the temperature of the mechanical parts of the engine. Conventional lubricating oils provide different features. However, it is still desirable to improve the performance of conventional lubricating oils on lubrication and heat dissipation.

SUMMARY OF THE INVENTION

The present invention has been accomplished under the circumstances in view. It is one object of the present invention to provide a nanostructured lubricating oil, which contains nanometered graphite that fills up the holes in the surface of the mechanical parts when the nanostructured lubricating oil is used to lubricate the engine of a motor vehicle. It is another object of the present invention to provide a nanostructure lubricating oil, which forms a three-layer oil film of ferric oxide-silicon-oxide-graphite when applied to the engine of a motor vehicle, improving heat dissipating, lubricating, and wear resisting performance.

According to a first embodiment of the present invention,

the nanostructured lubricating oil is comprised of one part of nanometered graphite and four parts of a lubricating oil. According to a second embodiment of the present invention, the nanostructured lubricating oil is comprised of one part of a first synthesized oil and nine parts of a second synthesized oil. The first synthesized oil is comprised of a low viscosity lubricating oil and equal amount of nanometered silicon oxide and nanometered ferric oxide mixed in the low viscosity lubricating oil. The second synthesized oil is comprised of one part of nanometered graphite and four parts of a standard viscosity lubricating oil.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a schematic drawing showing the formation of an oil film according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A nanostructured lubricating oil according to the first embodiment of the present invention is obtained by: grinding graphite into graphite powder of particle diameter within 100~200 nanometers, and then mixing 20wt% of the graphite powder with 80wt% of lubricating oil of standard viscosity. Because the nanostructured lubricating oil contains nanometered graphite molecules, nanometered graphite will fill up the holes in the surface of the mechanical parts when lubricating the engine with the nanostructured lubricating oil. Therefore, the nanostructured

lubricating oil smoothes the surface of the mechanical parts, improving the wearing resistance power of the mechanical parts of the engine.

A nanostructured lubricating oil according to the second embodiment of the present invention is obtained by: grinding silicon oxide and ferric oxide into powder of particle diameter within about 20 nanometers, and then mixing 0.5wt% of the nanometered silicon oxide with 0.5wt% of the nanometered ferric oxide with 99wt% low viscosity lubricating oil to form a first synthesized oil, and then mixing 20wt% of the first synthesized oil with 80wt% of the nanostructured lubricating oil thus obtained from the aforesaid first embodiment to form a second synthesized oil, and then mixing 10wt% of the first synthesized oil with 90wt% of the second synthesized oil to form the desired nanostructured lubricating oil.

Because the specific gravity of silicon oxide and ferric oxide are 2.3~2.6 and 7.8 respectively, and the diameter of graphite molecule is greater than silicon oxide and ferric oxide, the nanostructured lubricating oil forms an oil film on the surface of the mechanical parts when applied to lubricate the engine. As illustrated in FIG. 1, the oil film is a three-layer structure comprising a bottom ferric oxide layer 3, a top graphite layer 1, and an intermediate silicon oxide layer 2. The oil film fills up holes in

the surface of the mechanical parts 4, improving the wear resistance power as well as the heat absorbing and dissipating power of the mechanical parts 4, and reducing the coefficient of expansion of the mechanical parts 4.

Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.